request of the complainants to locate the health centre at some other place could not therefore be granted.

Sanitary Inspectors—Public Health Department—order of seniority of.

286. Mr. E. Ikkanda Warriar.—Will the Government be pleased to state a list containing the names of Sanitary Inspectors in the Public Health Department according to the order of seniority, commencement of service and their qualifications?

Dr. E. S. R. Menon.—The list is herewith appended. *(Appendix III).*

Public Health Department—Organising Secretary—qualifications of.

287. Mr. P. Raman Menon.—Will the Government be pleased to state:—

(a) whether the newly appointed Organising Secretary in the Public Health Department is a native of Cochin State; if so, which is her native place;

(b) what are the medical qualifications, if any, of the newly appointed Organising Secretary?

Dr. E. S. R. Menon.—(a) no.

(b) Health Supervisor's Diploma (1st class), 9 years' experience of Health work in Burma and India.

Work done by the Entomologist.

288. Mr. R. Viswanathan Chettiar.—Will the Government be pleased to state the work done by the Entomologist in the State for the year 1110?

Mr. K. Krishna Warriar.—The information is contained in the annual report of work done by the Entomologist in the year 1110 which is herewith appended. *(Appendix IV.)*

Grant-in-aid dispensaries—additional facilities.

289. Mr. P. J. Alexander.—Will the Government be pleased to find ways and means in the near future to

(a) increasing the medicine allowance to grant-in-aid dispensaries to at least Rs. 500 per mensem;

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APPENDIX IV.

(Question No. 288.)

Annual report of work done by the Entomologist in the year 1110.

Laboratory Investigations.

(a) *Life Histories of Pests.*—Studies on the life history of Contheyla rotunda, the Limacodid pest on cocoanuts were conducted throughout the year. The insect is found to be very susceptible to climatic and weather changes and the percentage of parasitism is very high.

The noctuid borer of cocoanuts was also found in small numbers during the year. Larval and Pupal stages have been studied. The nature and details of oviposition remain to be worked out.

The cocoanut Caterpillar "Nephantis Serinopa" claimed a good deal of attention in the Laboratory. Oviposition occurs throughout the year with varying degrees of intensity.

Gall Flies on mango shoots which sometimes cause severe damage to young grafted plants were found to be a single species of the cecidomyid family. All the stages except the egg have been worked out.

Investigations into the 'mites' and 'aphis' attacking chillies were conducted; but for want of better facilities the work could not be pushed to any appreciable extent. These pests are becoming prominent in recent years.

Spodoptera mauritia took up a considerable amount of time in the laboratory; but it does not thrive under our poor laboratory conditions.

The study of Oryctus rhinoceros started in previous years was continued during the year under report also.

Besides the above major investigations the common pests of paddy, of vegetable crops like Bhendi, Bringals and the different gourds and of Fruit crops like Mango, Sapota, Jack etc., were reared and studied under Laboratory conditions as far as possible.

The chief difficulty in rearing is the absence of a suitable Insectary. Rearing in an ill-ventilated and stufy situation which is the case at present cannot be expected to give reliable results. Insectary is the most important item in Entomological work.

(b) *Insecticidal trials.*— The use of cyanide gas poisoning for burrowing pests chieflly rats was tried for the first rime during the year under report. The method consists in blowing a few puffs of Calcium Cyanide powder into the burrows of those rodents by means of a special pomp known as the "Cyanages gas pump" the opening being afterwards closed with earth. The powder in contact with atmospheric moisture gives rise to the Hydrocyanic Acid Gas which is extremely fatal to all living forms. The residue left is simple lime, which is beneficial to the soil.

The method seems to offer possibilities of rat control on a large scale.

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Soaps made of "Pongamia glabra" oil and Cashewnut oil were tried on Aphis on various plants. Longer trials have to be made before anything definite can be said about their efficacies as insecticides.

(c) *Collections and Identifications.*—The insect museum was augmented largely during the year under report.

A beginning was made in the year to systematise the collections into Families, Genera and Species. I visited the Entomological Laboratory at Coimbatore and stayed there for a week, identifying some of our collections with the aid of types at the Research Institute. About 200 specimens were got identified in this manner.

The Government Entomologist, Madras, had occasion to visit our collections during the year and has referred to the same appreciatively.

(d) *Microscopic work.*—Morphological studies of some of the pests like Mango Gall Flies, Mango Hopper, etc., used to claim my attention whenever time permitted.

Central Farm

As in previous years the crops in the Central Farm were kept under observation, not only for studying insects in the field but also for the adoption of suitable remedial measures. The most important amongst them are dealt with here.

Oryctus rhinoceros remained as bad as in the previous years Systematic picking and organised control of all rotting organic matter are essential to keep down the pest. No case of Palm Weevil attack was noticed during the year.

The Flea Beetle "Nisota Madurensis" and the red cotton bug "Dysdercus cingulatus" were severe on Bhendi.

"Leuconodes orbonalis" and the Tinged bug "Eurentius echinus" were rather bad on Brinjals.

Eugnamptus marginatus, the gall flies and the stone weevil Cryptor hynchus mangiferae were prominent on Mangoes. Mango hoppers Idioceres sp: were not so troublesome this year.

Scale insects and the Rutelid beetle "Adoratus ovalis" were bad on roses.

Remedial measures were advised whenever necessary.

District Work.

The section has received a large number of enquiries for help against insect attacks from various parts of the State. The following are the most important.

"Nymphula Depunctalis" on paddy from many villages in the Mukundapuram and Trichur Taluks. The pest was more severe in the Mundakan than in the Viruppu crop.

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"Eugnamptus marginatus" cutting down tender mango leaves and the flies producing galls on young grafted plants were reported from many places.

A severe case of underground borer trouble—larvae of a melolonthis beetle probably—was reported from a vegetable garden in Karuvannur side in Trichur Taluk.

Mango Hopper trouble Idioceres sp: was reported from a few places in Mukundapuram Taluk.

Complaints of "Palm Beetle attack" have been common throughout the year.

A Cerambycid borer was reported as damaging pepper vines in Poyya and Mala areas in Mukundapuram Taluk.

The trouble from rats in cocoanut gardens as well as in paddy fields has been the subject of a large number of complaints from different parts of the State.

Most of the enquiries were attended to personally as far as possible. Advice was rendered in other cases.

Investigations and campaigns.

An investigation on the occurence of "Spodoptera sp:" on paddy chiefly in Kole lands was started during the year under report in collaboration with the Madras Government Entomologist. A temporary laboratory was established near the Kole lands and it continued to work for a period of two months. A headway has been made this year in elucidating the life history, the climatic and other factors influencing the outbreak, and the work is proposed to be continued for the next few years until some definite results enabling us to correctly forecast an outbreak are achieved.

"Nephantis serinopa" outbreaks occured in the following villages of the respective Taluks.

Cochin-Kanayannur Taluk.— Maradu, Nettur, Kumbalam, Kumbalanghi, Mulavukad, Elangunnapuzha and Kuzhuppilli.

Mukundapuram Taluk.— Mala, Pallipuram, Poyya, Vallivattom and Edathirinji.

Trichur Taluk.— Enammavu, Kanjani and in Trichur town on the roadside trees in the Eastern Bazaar.

The paucity of south-west monsoon in 1109 and the north-east monsoon in 1110 contributed largely to the increase of the pest.

The outbreaks in all the above villages with the exception of Kumbalam in Cochin-Kanayannur Taluk were controlled in the year under report itself. The pest was very bad in Panangad in Kumbalam village and so could not be entirely checked before the close of the year.

Now "Nephantis" work has become a part of our daily routine and does not seem to be a special problem as in the previous years.

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Owing to drought the number of parasites fell down considerably towards the first half as well as the third quarter of the year. With the advent of rains however there was noted an increase in their strength towards the close of the year.

During this year also I had occasion to visit the marginal gardens in Chowghat, Ponnani and along the Canolly Canal with the Madras Government Entomologist and his staff.

The pest was very bad in Chowghat side while in the other areas it was under control.

Our border along the Canolly Canal was quite under control.

Leaflets and Bulletins.

A leaflet on "Ticks infesting domestic cattle" was published during the year. A Bulletin on "Cocoanut Pests" was prepared during the year and sent to the Press for publication.

Lac and Bee Culture.

Trials with inoculation of Lac brood, obtained from the Indian Lac Research Institute, Ranchi were made in two seasons, one in October 1934 on Raintree and the other in February 1935 on Raintree, Butea frondosa and Schleichm trijuga. The February inoculation gave a very satisfactory crop in June 1935 and the preliminary trials have been very promising.

Inoculations during the above seasons were conducted on suitable hosts in the "Machad Range" forest in Trichur Taluk and in the divisional Forest Office, Chalakkudi. The results of the "February to June" crop are very promising.

The work has been arranged to be carried out more systematically in future.

Attempts to start a small Apiary were made during the year and six hives have been constructed for the purpose. The work will be commenced early in 1111.

Exhibitions

The section put up exhibits for the various exhibitions conducted in the State, viz., the Perumpilavu Cattle Fair and Exhibition, the All India Industrial Exhibition, Trichur and the Rural Exhibitions at Palluruthi and Kanjiramittom in Cochin-Kanayannur Taluk.

I was in charge of the departmental stall at the All India (Agricultural) and Industrial Exhibition) Swadeshi Exhibition conducted by the Salem Municipality during the month of August 1935.

Teaching Work.

This was attended to as in previous years. Besides "Plant pests" the subject of "Soils and their management" was also handled by me.

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